■ Coordinate conjugations for Metaclass V

In[1]:=
```
SetDirectory["~/writing/WIP/Conjugation/"];
<< kappaLib.m
```

```
KappaLib v1.1
```

In[3]:=
```
mat1 = {{a1, -b1, 0, 0, 0, 0}, {b1, a1, 0, 0, 0, 0}, {0, 0, a2, 0, 0, a3}, {0, 1, 0, a1, b1, 0}, {1, 0, 0, -b1, a1, 0}, {0, 0, a3, 0, 0, a2}};
```

```
H2 = {{0, 0, 0, 1, 0, 0}, {0, 0, 0, 0, 1, 0}, {0, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 0}, {0, 1, 0, 0, 0, 0}, {0, 0, 1, 0, 0, 0}};
```

```
H3 = {{0, 0, 0, 1, 0, 0}, {0, 0, 0, 0, 1, 0}, {0, 0, 0, 0, 0, -1}, {1, 0, 0, 0, 0, 0}, {0, 1, 0, 0, 0, 0}, {0, 0, -1, 0, 0, 0}};
```

```
kappa1 = emMatrixToKappa[mat1];
kappa2 = emMatrixToKappa[H2.mat1.H2];
kappa3 = emMatrixToKappa[H3.mat1.H3];

Union[Flatten[kappa2 - kappa3]]
```

Out[9]=
```
{0}
```

In[10]:=
$$L = \begin{pmatrix} 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{pmatrix};$$

```
kappa2a = emCoordinateChange[kappa2, L];

emKappaToMatrix[kappa1] // MatrixForm
emKappaToMatrix[kappa2a] // MatrixForm
```

Out[12]//MatrixForm=
$$\begin{pmatrix} a1 & -b1 & 0 & 0 & 0 & 0 \\ b1 & a1 & 0 & 0 & 0 & 0 \\ 0 & 0 & a2 & 0 & 0 & a3 \\ 0 & 1 & 0 & a1 & b1 & 0 \\ 1 & 0 & 0 & -b1 & a1 & 0 \\ 0 & 0 & a3 & 0 & 0 & a2 \end{pmatrix}$$

Out[13]//MatrixForm=
$$\begin{pmatrix} a1 & -b1 & 0 & 0 & 0 & 0 \\ b1 & a1 & 0 & 0 & 0 & 0 \\ 0 & 0 & a2 & 0 & 0 & -a3 \\ 0 & 1 & 0 & a1 & b1 & 0 \\ 1 & 0 & 0 & -b1 & a1 & 0 \\ 0 & 0 & -a3 & 0 & 0 & a2 \end{pmatrix}$$

In[14]:=
```
Union[Flatten[(kappa1 /. {a3 → -a3}) - kappa2a]]
```

Out[14]= {0}